REMARKS

Claims 30-96 are pending in the application. Claims 30-35, 39, 42-44, 47-59 have been amended, and claims 1-29, 36-38, 40-41, and 45-46 have been cancelled. Further, claims 60-96 are newly added to the application in order that the Applicants may more fully claim the subject matter of their invention.

The Title has been changed to correspond with the claimed subject matter and the specification has been amended to address objections to the specification and to better clarify the disclosed subject matter. Further, the abstract has been amended to more clearly describe the disclosed subject matter. No new matter has been introduced by the amendment.

Specification Objection

The specification has been objected to for failing to recite the current status of the prior application to which the instant application claims priority. This objection is overcome in view of the amendment to the specification in which the patent number and PCT number of the claimed priority application is provided.

The specification has also been objected to for the use of the word "divulges." This objection is overcome in view of the amendment of the specification in which the word "divulges" has been replaced by the word "disclosed." The specification has further been amended to replace the term "revealed" with the word "disclosed." Also, at page 7, the imprecise term "it" has been replaced with the intended subject of the sentence. No new matter has been introduced by the amendment.

The section heading in the specification at page 4 has been changed and, in the following paragraph, text has been added to better summarize the disclosed subject matter relating to "inclusions" and the "inclusion layer" concepts. The applicants assert the added text merely summarizes the teaching in the original specification and does not introduce new matter.

Rejection Under 35 U.S.C. § 103(a)

Claims 30-40 and 42-59 have been rejected over Bruel. This rejection is overcome in view of the amendment of claims 30 and 59 together with the following remarks.

Claim 30, as amended, recites a process for forming a thin film of material from a substrate. The process includes forming a buried confined layer in a step (a) by introducing a first species of gaseous compounds into the substrate. A second species of gaseous compounds is introduced substantially within at the confinement layer in step (b), and separating and recovering the thin film from the substrate in a step (c). The Applicants respectfully assert that the process recited in claim 30 is not suggested or disclosed by Bruel. Support for the amended claim can be found in the applicants' specification, for example, page 18, lines 26-33, and page 21 beginning at line 24 and continuing on page 22, lines 1-15. A specific, non-limiting, example is provided beginning on page 26, line 34 and continuing to page 27, lines 1-15.

In contrast to the Applicants' claimed process, Bruel discloses a process that includes implanting a gaseous species into a wafer of semiconductor material. A stiffner is then brought in contact with the implanted face of the wafer. Next, a heat treatment is carried out to cause a crystalline rearrangement in the implanted wafer. Thus, Bruel does not suggest or disclose a process in which a buried confinement layer is formed by a first species of gaseous compounds, followed by introducing a second species of gaseous compounds into a substrate within the confinement layer.

In their various dependent claims, the Applicants recite particular process methods for forming a buried confinement layer. The Applicants assert that their various processes for forming a buried confinement layer are distinct from the process step of introducing gaseous compounds. Thus, there is no basis for the assertion in the instant Office Action that the Applicants' claimed process merely recites the splitting of a process step disclosed in Bruel into two steps that are substantially identical or equivalent to the disclosed process step.

Dependent claims 31 and 32 claims are allowable in view of their dependence from claim 30. These claims, as amended, further distinguish over Bruel by reciting implantation features of the second species and, in claim 32, by further reciting a heat treatment process to migrate the second species to the confinement layer.

Dependent claims 33-35 recite further aspects of the substrate used in the claimed process. These claims have been amended to improve their form and are allowable in view of their direct and indirect dependence from claim 30.

The rejection of claims 36-38 is now moot in view of the cancellation of these claims.

Claim 39 is allowable in view of its dependence from claim 30. This claim, as amended, recites that the second species of gaseous compounds has a chemical affinity for the first species of gaseous compounds. Support for the amendment can be found, for example, in the teaching of the specification identified above, and further on page 7, lines 15-16.

The rejection of claims 40-41 is now moot in view of the cancellation of these claims.

Dependent claims 42-43 are allowable in view of their indirect dependence from claim 30 and have been amended to correspond with the amendment of claim 30 from which they indirectly depend. Claim 42 has been further amended to recite that the first species comprise neutral compounds. Support for the amendment can be found, for example, on page 18, lines 28-31.

Claim 44 has been amended to improve its form and to correspond to the amendment of claim 30 from which it indirectly depends. This claim is allowable in view of its ultimate dependence from claim 30.

The rejection of claims 45-46 is now moot in view of the cancellation of these claims.

Dependent claims 47-58 have been amended to improve their form and to correspond with the amendment of claim 30 from which they directly or indirectly depend. These claims are allowable in view of their ultimate dependence from claim 30.

Claim 59, as amended, recites a process for forming a thin film of material from a substrate. The process includes forming a gaseous compound trap zone at a depth in the substrate corresponding to a required thickness of the thin film. The gaseous compound trap zone is defined by a parametric mismatch between a material comprising the gaseous compound trap zone and adjacent regions of the substrate. The process further includes introducing into the material, a dose of gaseous compounds sufficient to cause formation of micro-cavities in a fracture plane along which the thin film can be separated from the remainder of the substrate. The introduction of gaseous compounds includes a step of implantation of the gaseous compounds. The thin film is separated and recovered from the substrate along the fracture plane by placing a support in intimate contact with the substrate such that the thin film bonds to the support.

The applicants respectfully assert that claim 59 is not suggested or disclosed by Bruel, at least because Bruel does not disclose the formation of a trap zone having a parametric mismatch with a material comprising the gaseous compound trap zone and adjacent regions of the substrate.

Double Patenting Rejection

Claims 30-40 and 47-59 have been rejected under the judicially created doctrine of obviousness-double patenting over claims 1-19 of U.S. Patent No. 6,756,286. The rejection of the non-canceled claims is overcome in view of the accompanying terminal disclaimer.

The additionally cited references have been carefully reviewed and found not to be relevant to the Applicants' claimed invention.

New Claims

Claims 60-96 have been added in order that the Applicants may more fully claim the subject matter of their invention.

Claims 60-62 depend from claim 30 and recite further aspects of the introduction of gaseous species. Claim 60 recites implantation of a layer of ions in a layer, an

example of which appears in the applicants' specification at page 27, lines 1-7. Support for claim 61 can be found at page 22, lines 13-15, and support for claim 62 begins on page 26, line 34 and continues to line 15 of page 27. These claims are allowable in view of their direct and indirect dependence from claim 30.

Claim 63 recites a process that includes providing a first substrate having a stress region. A thin film layer is formed on the first substrate and gaseous compounds are introduced into the stress region. The step of introducing the gaseous compounds can take place either before or after the formation of the thin film layer. The thin film layer is contacted with a second substrate and the thin film layer is transferred to the second substrate. The Applicants respectfully assert that the process recited in claim 63 is not suggested or disclosed by the prior art.

Claims 64-76 depend from claim 63 and recite further aspects of the process elements set forth in claim 63. In claim 64 providing a stressed region comprises epitaxial depositing a material. In claim 65, providing a stressed region comprises sputtering a material onto the first substrate. In claim 66 providing a stressed region comprises chemical vapor depositing a material onto the first substrate. In claim 67, providing a stressed region comprises laser ablation-assisted vapor deposition of a material onto the first substrate. In claim 68, providing a stressed region comprises depositing a stressed film on a back side of the first substrate. In claim 69, providing a stressed region comprises an implantation of a stress-inducing species into the first substrate. In claim 70, providing a stressed region further comprises applying a heat treatment to the stressed region. In claim 71, the buried confinement layer is formed by a film deposition process. In claim 72, the buried confinement layer is formed by means of a columnary growth process. In claim 73, the buried confinement layer is formed by means of generating grain joints. In claim 74, the buried confinement layer is formed by forming a material having a parametric mismatch with adjacent regions of the substrate. In claim 75, the substrate is a multi-layer substrate and the buried confinement layer is formed by means of etching a portion of the multi-layer substrate. In claim 76, the substrate is a multi-layer substrate, and the buried confinement layer is formed by means of a heat treatment of at least one of the layers in the substrate.

The Applicants provide support for their new claims 64-69 throughout their specification. In particular, providing a substrate having a stressed region is described by various film deposition techniques such as set forth on page 13, lines 6-14, page 14, lines 1-15, page 15, lines 22-34, and page 12, lines 16-33. Etching techniques are disclosed, for example, on page 17, lines 7-34. Implantation techniques are disclosed, for example, on page 18, lines 28-35 and page 19, lines 1-10. Deposition of a stress-inducing layer on the back side of a substrate is disclosed, for example, on page 21, lines 15-23.

Support for claim 69 has been described above in the applicants' remarks pertaining to claim 30.

The Applicants also provide support for their new claims 70-76 throughout their specification. In particular, thermal treatment techniques are disclosed, for example, on page 20, lines 7-35, and page 21, lines 1-14. A mulit-layered structure is disclosed , for example, beginning on page 14, line 30 and continuing on page 15 to line 5. Columnary growth processes are disclosed, for example, beginning on page 12, line 26 and continuing on page 13, to line 26. The generation of grain joints is disclosed, for example, on page 13, lines 15-26. Etching techniques are disclosed, for example, on page 15, lines 7-14.

With regard to claim 75, the Applicants note that Deines et al. disclose converting a portion of a silicone substrate into a porous silicone substance by anodic treatment and hydrofluoric acid. The substrate is then heated to a temperature of 1050°C to 1250°C to create reaction in the porous silicone and create a layer of monocrystalline silicone carbide on the silicone substrate. (See for example, col. 1, ll. 54-67.) The Applicants respectfully assert that the addition of the Deines et al. process to the Bruel process would disrupt the crystalline rearrangement effect in the process described by Bruel. Furthermore, the process disclosed by Deines et al. is described as sufficient to accomplish the recited task of forming a monocrystalline silicone carbide layer on a silicone substrate. Accordingly, one skilled in the art would not have been motivated to somehow insert the self-contained process of Deines et al. into that of Bruel. Furthermore, the Applicants respectfully assert that even if one of ordinary skill in the art

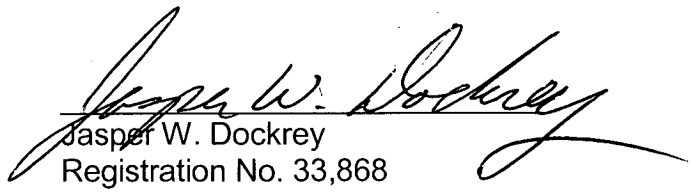
would somehow have been motivated to combine the teaching of Deines et al. with Bruel, the process recited by claim 75 would still not be suggested or disclosed.

Claim 77 recites a process for forming a thin film of material from a substrate including providing a first substrate having a stressed region in a confinement layer at a distance from a surface of the substrate. At least one gaseous compound is introduced at a mean depth substantially within the confinement layer and a heat treatment is applied to allow the at least one gaseous compound to migrate into the confinement layer. The thin film is separated and recovered from the substrate along a fracture plane in the confinement layer. In addition to the specification section previously cited, support for claim 77 can be found, for example, on page 22, lines 3-15. The Applicants assert that the process recited by claim 77 is not suggested or disclosed by the cited references.

Claims 78-96 depend either directly or indirectly from claim 77. Support for the particular subject matter recited in these claims has been described above.

The Applicants have made a novel and non-obvious contribution to the art of processing techniques for the formation of thin films. The claims at issue distinguish over the cited references and are in condition for allowance. Accordingly, such allowance is now earnestly requested.

Respectfully submitted,



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